IN THE CLAIMS

I claim:

1. (Currently amended) A low temperature process for removing a volatile gas from wet sludge, comprising:
a) adding zeolite to a concentration of at least 0.05 gm per gallon of the sludge;
b) treating with ultrasonic energy to release the volatile gas from the sludge for binding to the zeolite; and
c) removing the zeolite by flocculation;
wherein the sludge reaches a maximum temperature of 50 degrees centigrade in response to the ultrasonic energy.

2. (Original) The process of claim 1, wherein the zeolite is clinoptilolite.

3. (Original) The process of claim 1, wherein the clinoptilolite comprises at least 0.5% calcium oxide.

4. (Original) The process of claim 1, wherein less than 2 watts hours of ultrasonic energy is delivered per gram of dry sludge matter.

5. (Original) The process of claim 1, wherein the volatile gas is selected from the group consisting of ammonia, a nitrogen compound, a sulfur compound, and hydrogen sulfide.

6. (Original) The process of claim 1, wherein the animal waste is selected from the group consisting of human septic waste, human sewage waste, swine waste effluent, chicken waste effluent, bovine waste effluent, duck waste effluent, and turkey waste effluent.

7. (Currently amended) A low temperature process for preferentially inactivating anaerobic bacteria in a sludge waste stream, comprising:
a) adding zeolite to the waste stream;

b) [adding an oxidizer to the stream] treating the waste stream with ultrasonic energy;
c) adding an oxidizer to the stream [treating the oxidized waste stream with ultrasonic energy]; and
d) removing solids from the waste stream;
wherein the sludge reaches a maximum temperature of 50 degrees centigrade in response to the ultrasonic energy. [page 11, lines 12-23; 16; 23 lines 4-7; lines 16-18 "low temperature process"]

8. (Original) The process of claim 7, wherein less than 2 watts hours of ultrasonic energy is delivered per gram of dry sludge matter.

9. (Original) The process of claim 7, wherein solids are removed by flocculation

10. (Original) The process of claim 7, wherein the animal waste is selected from the group consisting of human septic waste, swine waste effluent, chicken waste effluent, bovine waste effluent, duck waste effluent, and turkey waste effluent.

11. (Currently amended) A low energy process for economical concentration of watery sludge into a more useful form, comprising:
a) adding zeolite to the sludge;
b) treating the sludge having added zeolite with ultrasonic energy at between 0.001 and 8.0 watt hours of ultrasonic energy per gram of solid in the sludge;
c) adding a flocculant to the ultrasonically treated sludge; and
d) dewatering by at least one of: a) placing the flocculant treated sludge into a geotextile; b) placing the sludge into a cyclonic dryer; and c) treating the sludge by dissolved air floatation;
wherein the wet sludge remains at a maximum temperature of 50 degrees centigrade at all times.

12. (Original) The process of claim 11, wherein the zeolite is added at a ratio of between 0.1 and 2.5 percent wgt/wgt of solid matter in the sludge.

13. (Original) The process of claim 11, wherein at least steps b) and c) are carried out in a sludge flow stream.

14. (Original) The process of claim 11, wherein the flocculant is added to a final concentration of between 10 and 1000 parts per million.

15. (Original) The process of claim 11, wherein the geotextile has a nominal sieve opening size of between 10 and 1000 microns.

16. (Original) The process of claim 11, wherein the sludge remains at less than 30 degrees centigrade at all times.

17. (Original) The process of claim 11, wherein the sludge contains less than 5% solids prior to addition of zeolite and becomes concentrated to at least 8% solids by gravity action in the geotextile.

18. (Original) The process of claim 11, wherein the sludge contains less than 5% solids prior to addition of zeolite and becomes concentrated to at least 16% solids by gravity action in the geotextile.

19. (Currently amended) The process of claim 11, further comprising the step of adding an oxidant [prior to] <u>after</u> ultrasonication.

20. (Original) The process of claim 19, wherein the oxidant is ozone.

21. (Original) A low energy process as described in claim 11, wherein the treated sludge in the geotextile is exposed to a vacuum to further remove water.

22. (Original) The process of claim 11, wherein the treated sludge in the geotextile is transported by truck or rail car to a site for air drying and pulverization into fertilizer.

23. (Original) The process of claim 11, wherein the animal waste is selected from the group consisting of human septic waste, swine waste effluent, chicken waste effluent, bovine waste effluent, duck waste effluent, and turkey waste effluent. d) removing solids from the waste stream by flocculation.

24. Canceled

25. Canceled

26. Canceled

27. Canceled

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32. Canceled

33. Canceled

34. Canceled

35. (New) A low temperature process for selectively destroying fecal bacteria in a sludge stream, comprising a first step of applying sonication from a high power sonicator of at least 3 kilowatts briefly to disperse clumps without heating the stream above 50 degrees centigrade, and a second step of adding active oxygen

for prolonged contact with the dispersed material; and wherein the sludge reaches a temperature of no more than 50 degrees centigrade prior to drying.

36. (New) The method of claim 35, wherein the active oxygen is ozone.

37. (New) The method of claim 35, further comprising the step of drying the sludge at a low temperature.

38. (New) The method of claim 35, wherein the temperature is no higher than 40 degrees centigrade.

39. (New) The method of claim 35, further comprising the step of drying the sludge at a temperature below 50 degrees.